



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,323	01/24/2001	David Meiri	30027-127001	3938
91828 7590 03/24/2010 Occhiuti Rohlicek & Tsao LLP 10 Fawcett Street Cambridge, MA 02138				
EXAMINER				
BURGOESS, BARBARA N				
ART UNIT		PAPER NUMBER		
2457				
MAIL DATE		DELIVERY MODE		
03/24/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/768,323

Applicant(s)

MEIRI, DAVID

Examiner

BARBARA N. BURGESS

Art Unit

2457

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

This Office Action is in response to Amendment filed January 19, 2010. Claims 1-9 are presented for further examination.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al. (US Patent 5,905,897) in view of Kingsbury et al. (hereinafter "Kingsbury", US Patent Publication 2003/0061395 A1).

As per claim 1, Chou discloses a method for using a computer to assist a particular data storage machine in posting a message on a message list stored in a memory, said message list being accessible to a plurality of processors, said method comprising:

- Selecting a new-message slot (column 3, lines 3-5, 11-16, column 4, lines 42-45, 66-67; The interrupt controller has pending registers in which interrupt requests are stored);

- Placing said message in said new-message slot (column 5, lines 30-40; Interrupt requests are placed in the pending registers of the interrupt controller).
- Modifying said new-message slot to specify an intended recipient of said message, said intended recipient being selected from said plurality of processors (column 3, lines 11-16, column 4, lines 50-60, column 5, lines 3-6, 52-64; The destination register, vector register, and priority register associated with the interrupt requests specifies the processor that the interrupt request is intended).

Chou does not explicitly disclose:

- Receiving, from one of a plurality of processors, a message to be posted on said message list, said message having an intended recipient selected from said plurality of processors having access to said message list, wherein said message list includes messages having different intended recipients;
- Selecting a new message to be posted on said message list;
- Said intended recipient being selected from said plurality of processor having access to said message list.

However, in an analogous art, Kingsbury teaches a multiprocessor node having a shared local memory (message list) that stores a mailbox data structure for messages received for a plurality of processor. The memory (message list) is divided into portions to support different mailbox structures (message slots) for different processors receiving messages. A mailbox data structure (message slot) serves as a receiving area for messages being sent to specific processors. The mailbox has an array of message

Art Unit: 2457

slots for receiving and storing messages for particular processors (paragraphs [0029, 0032, 0038]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury message list in Chou's method enabling nodes to pass messages to each other.

As per claim 2, Chou does not explicitly disclose the method of claim 1 further comprising inserting said new-message slot into said message list, said message list including a first existing-message slot having a pointer to a second existing-message slot.

However, Kingsbury teaches availability indicators that indicate if a message slot is available to receiving messages, if a message is present in a message slot, and that a message is no longer present in the message slot. Indicators also show the number of slots filled or currently filling as well as a full mailbox (paragraphs [0013-0014, 0034]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury's pointer in Chou's method in order to determine available message slots.

As per claim 3, Chou does not explicitly disclose the method of claim 2 wherein inserting said new-message slot into said message list comprises setting a first pointer on said new-message slot to point to said first existing-message slot and a second pointer on said new-message slot to point to said second existing message-slot.

However, Kingsbury teaches availability indicators that indicate if a message slot is available to receiving messages, if a message is present in a message slot, and that a message is no longer present in the message slot. Indicators also show the number of slots filled or currently filling as well as a full mailbox (paragraphs [0013-0014, 0034]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury's pointer in Chou's method in order to determine available message slots.

As per claim 4, Chou does not explicitly disclose the method of claim 3 wherein inserting said new-message slot into said message list further comprises setting said pointer associated with said first existing-message slot to point to said new-message slot.

However, Kingsbury teaches availability indicators that indicate if a message slot is available to receiving messages, if a message is present in a message slot, and that a message is no longer present in the message slot. Indicators also show the number of slots filled or currently filling as well as a full mailbox (paragraphs [0013-0014, 0034]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury's pointer in Chou's method in order to determine available message slots.

As per per claim 5, Chou does not explicitly disclose the method of claim 1 wherein modifying said new-message slot to specify an intended recipient comprises

modifying a destination mask associated with said new-message slot, said destination mask including information specifying all intended recipients of said message.

However, Kingsbury teaches availability indicators that indicate if a message slot is available to receiving messages, if a message is present in a message slot, and that a message is no longer present in the message slot. Indicators also show the number of slots filled or currently filling as well as a full mailbox (paragraphs [0013-0014, 0034]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury's pointer in Chou's method in order to determine available message slots.

As per claim 6, Chou does not explicitly disclose the method of claim 5 wherein modifying said destination mask comprises

- Selecting, from a plurality of constituent data-elements of said destination mask, each of said constituent data-elements corresponding to one of said processors from said plurality of processors, a selected data-element corresponding to a selected processor;
- Modifying said selected data-element to indicate that said selected processor is an intended recipient.

However, Kingsbury teaches availability indicators that indicate if a message slot is available to receiving messages, if a message is present in a message slot, and that a message is no longer present in the message slot. Indicators also show the number of slots filled or currently filling as well as a full mailbox (paragraphs [0013-0014, 0034]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury's pointer in Chou's method in order to determine available message slots.

As per claim 7, Chou does not explicitly disclose the method of claim 1 further comprising updating a message directory to indicate the presence of said new-message slot in said message list, said message directory being accessible to said plurality of processors.

However, in an analogous art, Kingsbury teaches indicators examined to determine whether a received message in the mailbox (paragraphs [0034, 0045]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury updating message directory in Chou's method to indicate a new message indicating the number of slots either filled or currently filling or if all slots are full so the message is not sent to the mailbox.

As per claim 8, Chou does not explicitly disclose the method of claim 7 wherein updating said message directory comprises updating an attention mask containing information indicative of which processors from said plurality of processors are intended recipients of messages contained in said message list.

However, Kingsbury teaches availability indicators that indicate if a message slot is available to receiving messages, if a message is present in a message slot, and that a

message is no longer present in the message slot. Indicators also show the number of slots filled or currently filling as well as a full mailbox (paragraphs [0013-0014, 0034]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury's pointer in Chou's method in order to determine available message slots.

As per claim 9, Chou does not explicitly disclose the method of claim 7 wherein updating said attention mask comprises:

- Selecting from a plurality of constituent data-elements of said attention mask, each of said constituent data-elements corresponding to one of said processors from said plurality of processors, a selected data-element corresponding to a selected processor;
- Modifying said selected data-element to indicate existence of a new message for which said selected processor is an intended recipient.

However, Kingsbury teaches availability indicators that indicate if a message slot is available to receiving messages, if a message is present in a message slot, and that a message is no longer present in the message slot. Indicators also show the number of slots filled or currently filling as well as a full mailbox (paragraphs [0013-0014, 0034]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Kingsbury's pointer in Chou's method in order to determine available message slots.

Response to Arguments

3. Applicant's arguments filed have been fully considered but they are not persuasive.

The Office notes the following argument(s):

- (a) Kingsbury describes communication between "processes" and not between "processors".
- (b) Kingsbury does not disclose a single message list contains messages for all processors.
- (c) Kingsbury fails to teach or suggest a message list that includes messages having different intended recipients.
- (d) Chou's interrupt requests do not specify any intended recipients.
- (e) A suitable intended recipient CPU0-CPU3 would be identified in Chou.
- (f) Note that in Chou, the recipients would be CPU not "processes" as required by the claim.
- (g) In combination of Chou and Kingsbury, there is still no single message list that includes messages intended for different recipients.
- (h) The combination Chou and Kingsbury fails to include a method in which a new-message slot is selected from a message list that is accessible to a plurality of processors.
- (i) According to Chou, the interrupt request does not specify who is the intended recipient.
- (j) Motivation is insufficient due to dissimilar teachings.

- (k) In Kingsbury, an availability indicator is not a pointer from one message slot to another.
- (l) Indicators do not amount to destination masks that include information specifying intended recipients of a particular message.
- (m) In Kingsbury, there is no indication of whether or not there is a new-message slot in the message list.
- (n) There is no mask.

In response to:

- (a) Applicant admits "according to Figure 2 of Kingsbury, a particular node from Figure 1 may have more than one processor", (see page 2 of Arguments filed 1-19-10). Kingsbury's invention is related to a communication mechanism for shared memory multiprocessor computers. Although the invention is applicable in single processor computers, the embodiments are implemented on multiprocessor computers (paragraphs [0001-003, 0023-0024, 0027]).

Therefore, Kingsbury indeed discloses communication between processors.
- (b)-(c), (g)-(h) Kingsbury teaches a "shared memory region" (message list) shared by multiple processors. This region will store the mailbox data structure that stores messages for intended processors. The memory is divided into address ranges, portions, or spaces to hold the mailbox data structures (message slots) for specific processors implementing specific processes (paragraphs [0031-0033, 0036-0038, 0042]).

Therefore, Kingsbury undoubtedly discloses a single message list contains messages for all processors and a message list that includes messages having different intended recipients.

- (d)-(f), (i) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., message specifying intended recipients) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

According to claim language, "said message having an intended recipient selected from said plurality of processors". Nowhere in the claim does it state that the message "specifying an intended recipient".

Examiner thanks Applicants for admitting that Chou teaches a suitable intended recipient CPU0-CPU3 would be identified.

According to Chou, the interrupt request (message) has an intended recipient which is identified and selected by the destination processor and interrupt controller (column 3, lines 25-35).

Therefore, Chou discloses said message having an intended recipient selected from said plurality of processors as stated in the claim.

- (j) In response to applicant's argument that Kingsbury and Chou are nonanalogous art and dissimilar, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the

particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Kingsbury and Chou are combined to enable nodes to pass messages to each other, determine available message slots, indicate the number of slots either filled or currently filling or if all slots are full so the message is not sent to the mailbox.

- (k) Kingsbury teaches the use of indicators that provide information on the status of data structure. The indicators may also be pointers. The tail index is a location indicator that identifies the location of an available message slot in the mailbox structure (message slot) (paragraphs [0034, 0047]).

Therefore, Kingsbury undoubtedly discloses an availability indicator is a pointer from one message slot to another.

- (l) According to Kingsbury, each mailbox (message slot) has an external and internal name both having addresses and consisting of node number and port number (destination masks) (paragraphs [0036-0037]).

Therefore, Kingsbury discloses destination masks that include information specifying intended recipients of a particular message.

- (m) Kingsbury teaches indicators that indicate available slots (new-message slot) for receiving a message (paragraphs [0013, 0034]).

Kingsbury indeed teaches indication of whether or not there is a new-message slot in the message list.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA N. BURGESS whose telephone number is (571)272-3996. The examiner can normally be reached on M-F (8:00am-4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2457

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Barbara N Burgess/
Examiner, Art Unit 2457

Barbara N Burgess
Examiner
Art Unit 2457

March 18, 2010

/ARIO ETIENNE/

Supervisory Patent Examiner, Art Unit 2457